# 9. Mateusz

**Program Name: Mateusz.java** **Input File: mateusz.dat**

Gennady's little brother Mateusz received a set of stamps for Christmas, all of which are perfect rectangles. He likes to use multiple rectangles in order to create art. Gennady, always the analyst, is more interested in the area covered by at least one stamp. Given a description of Mateusz's artwork, can you answer his question?

**Input:** The data file will begin with T (T <= 10), the number of distinct artworks Mateusz has created. The first artwork is Work #1, the second is Work #2, and so on.

For each artwork, the first line of input has N (N <= 12), the number of stamps Mateusz used in this piece. The following N lines each contain 4 integers, x_i, y_i, w_i, and h_i. This means that there is a rectangle with bottom left corner at (x_i, y_i), and top right corner at (x_i + w_i, y_i + h_i). It is guaranteed that every point within a given rectangle is in the range [-10^8, 10^8]. All of Mateusz' artworks are on different sheets of paper.

**Output:** For each work, output a single line: the total area covered by some stamp, formatted in the same manner as the samples.

**Sample input:**

```
3
2
0 0 3 3
2 2 3 3
1
0 0 1 1
2
0 0 1000000 1000000
100 100 1 1
```

**Sample output:**

```
Case #1: The total area is 17.
Case #2: The total area is 1.
Case #3: The total area is 1000000000000.
```